ED-004

Ethernet to Digital + RS232

- **4 Digital Ports Independently can be In or Out**
- **1 RS232 Serial Port**
- **1 Ethernet Port**
- **User friendly software interface Simple web based configuration, monitoring and control**
- **Legacy compatible**

Digital Channels - 4 Ports individually selectable as Inputs or Outputs

Inputs	**NPN/PNP**	individually jumper selectable pull up for NPN, active low, type sensors and pull down for PNP, active high, type sensors
	Logic Level 0:	0V to +1V
	Logic Level 1:	+3.5V to +30V
	Latched Inputs:	Triggered by user programmable positive or negative edges, stays true until acknowledged
	Counter Inputs:	User programmable- counts positive or negative transitions 0-65335
Outputs	**Maximum output current**	Sinks up to 1 Amp per pin, 40V max load Max combined load 4.0 Amps per ED device
	Characteristic:	Open drain output, protected MosFET intelligent short circuit protection up to 36V Over temperature shutdown :175^{0}C typical 150^{0}C min
	Maximum output load Voltage	40V
	ESD Protection	16kV

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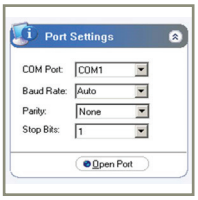
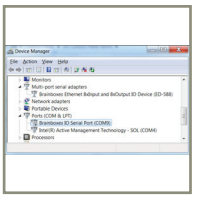




Complete Ethernet to Serial Device Server:

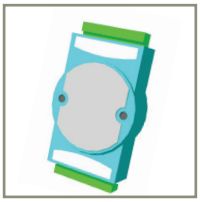
One RS232 serial port up to 1 MegaBaud, delivers uncompromising performance. Software drivers give Windows users a local COM port allowing you to retain your existing software applications and connect to your devices over the network. Web configuration and RFC2217 compliant interface for non-Windows users. Serial Port Tunnelling allows serial cable replacement over any distance, no software required.

Ethernet to DIO Device Server:

The Ethernet to DIO device is implemented using a Windows COM port driver that is completely compatible with all popular PC packages such as LabView, MATLAB and Agilent VEE and support a range of popular APIs. Continue to get value from your existing development and process control system.

Signed Drivers and Rigorous testing:

We use continuous automated testing of our in-house drivers and software to ensure when you install one of our devices 'it just works'. Our software allows hassle free installation, configuration and monitoring via our easy to use webpage. We make all our software versions available to download from our website.

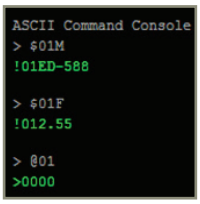


Familiar ASCII Command Protocol:

The ED range of devices uses the de facto industry standard ASCII command protocol implemented in the popular ADAM/NuDAM/EDAM modules.

Typical examples include:

$01M	read the name of device address 01
!01ED-588	device 01 replies that its name is ED-588
$01F	read firmware version number of device address 01
!012.54	firmware version of device 01 is 2.54
@01	read digital input output status of device 01
>1A45	device 01 digital input data= 1A (=00011010) digital output data = 45 (=01000101)
$012	read configuration of device 01
!01400500	device 01 40=typecode, 05 =gateway RS485 port is at 4800 Baud, 00=No checksum



The ED device's webpage has an interactive console where any command can be entered and it is immediately executed showing the device's response.

Wide Range Power Input:

+5VDC to +30VDC accommodates variation in the +24VDC factory floor and allows alternative power sources.

Lifetime Warranty and Support:

We can help with every aspect of your project, from getting you up and running to custom application.

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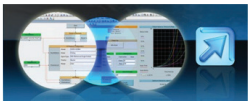
Software Development

COM Port on Windows

On a PC running the Microsoft Windows family of OS's the ED Boost.IO Manager provides a standard COM port interface so enabling thousands of proven legacy applications to work straight out of the box. COM port compatibility allows you to continue to get value from your existing application software investment. Moreover your engineers don't need to retrain to use the Brainboxes ED range of I/O devices.

Industry Standard Packages

The COM port based driver means that ED-xxx devices are completely compatible with all popular packages such as: LabView, MATLAB, Agilent VEE. You can continue to get value from your existing development and process control system. Hundreds of thousands program with these packages every day.



Software Platforms

The future is mobile, with data available everywhere on demand; Brainboxes has designed a software suite which allows you to design your new systems with mobile in mind with most popular platforms and development environments supported. With APIs and sample program code for: Microsoft .NET, C#, Visual Basic, C++, JavaScript, PHP, Java, Objective-C

Devices Supported

The ED sample codes running on Operating Systems such as Windows XP, Server 2008, Server 2012, Windows 7, Windows 8, and Linux based systems such as Android and Raspberry Pi allow you to run your applications on Servers, Desktops, Laptops, Tablets, Phones or low cost embedded devices, almost any device you wish.

Configuration Options

Windows Utility, Web Interface: Boost.IO driver provides familiar Serial COM port interface

OS Compatibility

Legacy COM porty drivers for: Microsoft Windows 8 32 bit & 64 bit Editions / Microsoft Windows 7 32 bit & 64 bit Editions / Windows Server 2008 32 bit & 64 bit Editions / Windows Server 2008 & Windows 2000 / Windows Vista 32 bit & 64 bit Editions / Windows Server 2003 32 bit & 64 bit Editions. TCP and web browser interface for other OS's & Linux, e.g. Android, Raspberry Pi

Ethernet

Ethernet Port	1 x RJ45 jack, 10/100Mhz autosensing, crossover auto sensing (Auto MDIX)
Protection	1,500Volts magnetic isolation between I/O ports and network
Network Protocols	ICMP, IP, TCP, DHCP, Telnet, HTTP
Connection to Network	Ethernet 10BaseT / 100BaseTX

Watchdog

Power up	On power up all outputs go to user programmable power on known good state
Watchdog coms link	On loss of communications link all outputs go to a user programmable watchdog comms known good state.
Watchdog hardware timer	If the firmware does not refresh the watchdog timer within a predetermined interval then all outputs go to a user programmable watchdog hardware good state
E-Stop function	When a user programmable input transitions to a preconfigured high or low state then all outputs go to a user programmable E-Stop known good state

Browser Interface

Webserver Interface

Configure IP address, monitor state of i/o lines, set the Watchdog Timers Output Reset Value, Set Power on digital output value.
Use the interface consol to talk to the device, accepts the full ASCII command set.
Monitor CPU temperature and see visual display of inputs and outputs.

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Housing and connectors

IP-30 rated non-conducting polyamide case

DIO Terminal	10 way x 0.2inch/5.08mm pitch removable screw terminal block
Power Terminal	3 way x 0.2inch/5.08mm removable screw terminal block

Power Supply

Power Consumption	2.5 Watt Max
Power Supply input	unregulated +5V to +30Volts DC, reverse polarity protection
Isolation	1500VRMS Magnetic isolation from Ethernet

Environmental

Operating Temperature	0^{o}C to $+60^{o}$C, +32°F to +140°F
Storage Temperature	-40^{o}C to $+85^{o}$C, -40°F to +185°F
Ambient Relative Humidity	5 to 95% (non-condensing)

LED Information

Status LED	Green	Device Ready
	Flashing Yellow	Changing Settings
	Flashing between Red & Green	Querying IP
	Flashing Green/Red	User performing Hard Reset
	Flashing between Green & Red/Yellow	IP address diagnostic
	Flashing between Green & Yellow	Initialization diagnostic
Link LED	Green light on	Network Link Established
	Flashing Green	Network Data RX/TX
Activity	Flashing Green	Output set / Input Read
	Flashing Red	Output overload

Port Settings - RS232

Baud Rate	From 110 - 1 MegaBaud - Any custom Baud rate accepted
Data Bits	5,6,7 or 8
Parity	Odd, Even, None, Mark or Space
Stop Bits	1 or 2
Flow Control	RTS/CTS, DSR/DTR, XON/XOFF
Tx/Rx Modes	Point to Point

Packaging Information

Packaging	Installation CD including manual, Microsoft signed drivers & utilities, Quick Start Guide
Packaged Weight	0.210 kg, 0.46 pounds
Packaged Dims	150(l) x 150(w) x 50(h) mm, 5.9(l) x 5.9(w) x 2.0(h) inches
GTIN Universal Code	837324009859

Approvals

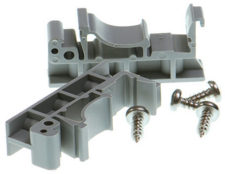
Industry Approvals	CCC-Mark, C-Tick, Microsoft Certified Gold Partner, WEEE, RoHS, METL
Microsoft Approvals	AEO (C-TPAT)
Microsoft Signed Drivers	Windows 8 32 bit & 64 bit Editions Windows 7 32 bit & 64 bit Editions Windows Server 2008 32 bit & 64 bit Editions Windows Server 2008 & Windows 2000 Windows Vista 32 bit & 64 bit editions

Microsoft Gold Partner

PW-600: Optional Global Power supply

Power supply with connectors for UK, USA, EU and AUS mains socket. 'Tails' are suitable for connecting to screw terminal blocks

MK-048: Optional DIN Rail Mount



Can be attached to device to enable snap on DIN rail mounting

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